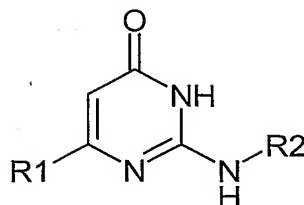


What is claimed is:

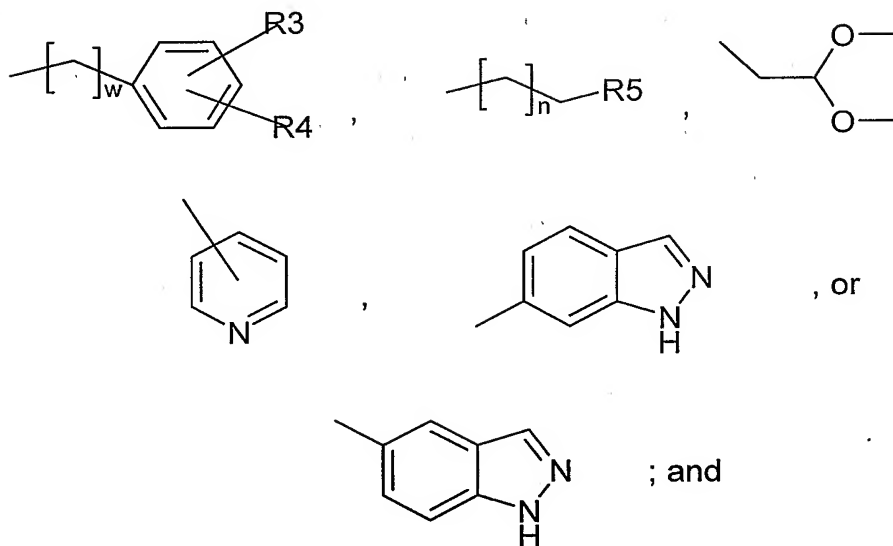
1. A compound of the formula I, or a salt, solvate, or a physiologically functional derivative thereof



I

in which

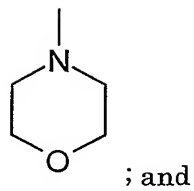
R2 is a radical of the formula



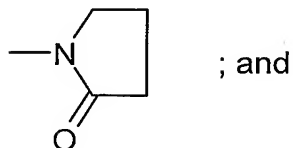
in which

- 15 $n = 1 - 2$;
 $w = 0 - 2$;

R3 and R4 are independently hydrogen, hydroxy, -OR6, halogen, -SO₂NH₂, -OH, -C₁₋₆alkyl, -(C=O)-OEt, -NH(C=O)-CH₃, or a radical of the formula

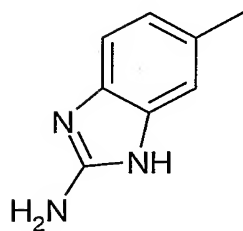
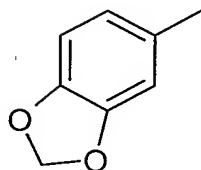
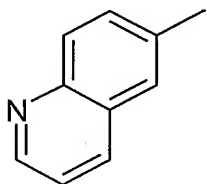


R5 is -NH_2 , hydrogen, -OR_6 , $\text{-N(R}_6\text{)(R}_7\text{)}$, or a radical of the formula

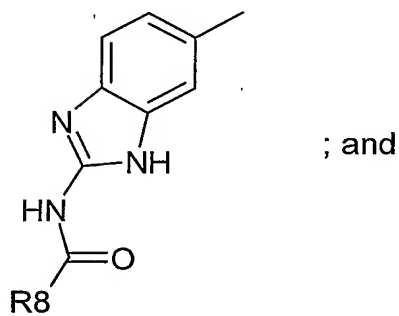


5

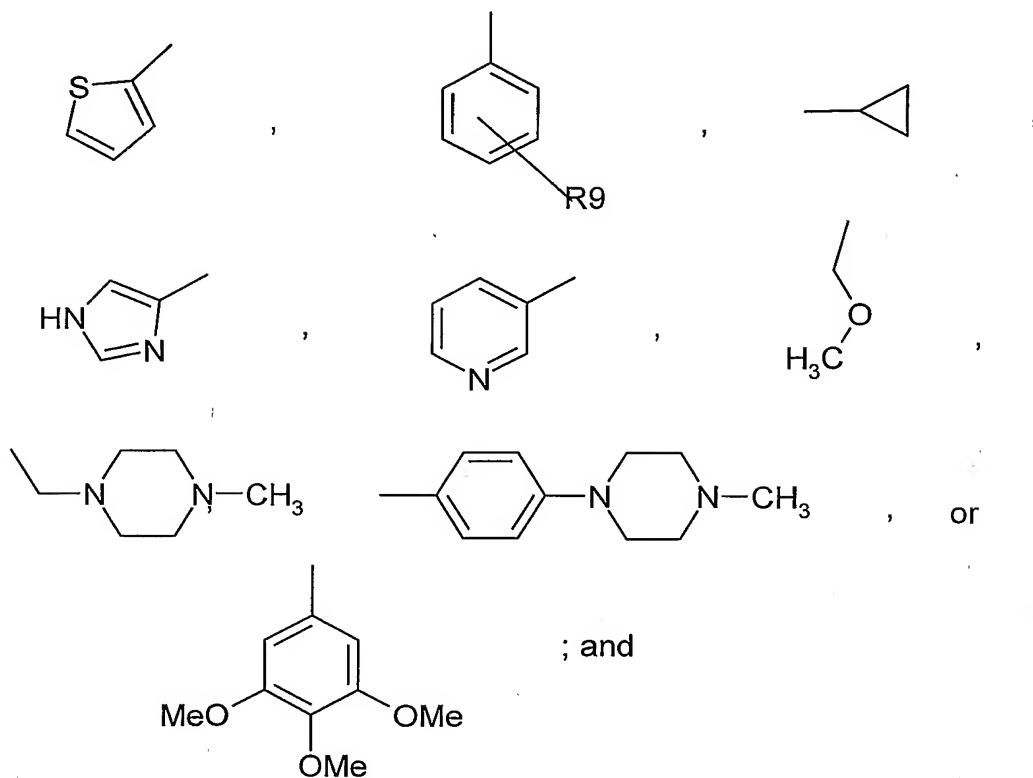
R1 is a radical of the formula



, or



R8 is a radical of the formula



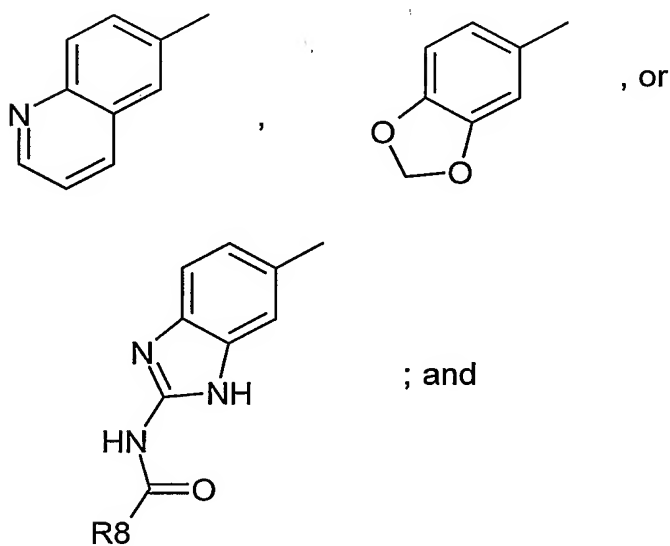
; and

R9 is $-\text{NH}(\text{C}=\text{O})\text{CH}_3$, $-\text{SO}_2\text{NH}_2$, $-\text{SO}_2\text{N}(\text{R}_6)(\text{R}_7)$; and

R6 and R7 are independently C_{1-6} alkyl.

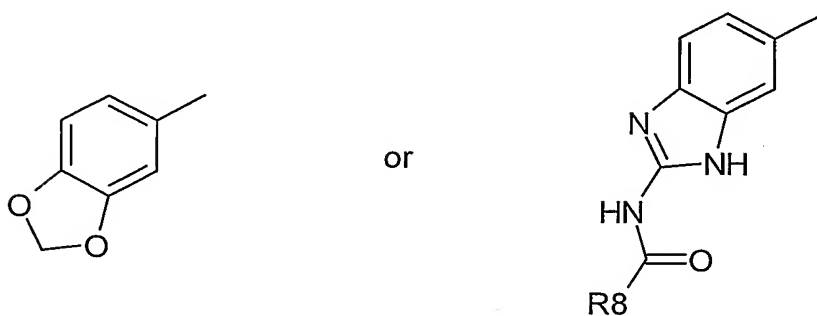
5

2. A compound of claim 1 in which R1 is a radical of the formula



; and

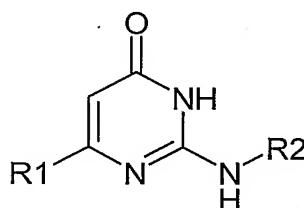
3. A compound of claim 2 in which R1 is a radical of the formula



4. A compound of claim 3 in which R8 is 2-thienyl.

5

5. A method of inhibiting hYAK3 in a mammal; comprising, administering to the mammal a therapeutically effective amount of a compound of formula I, or a salt, solvate, or a physiologically functional derivative thereof

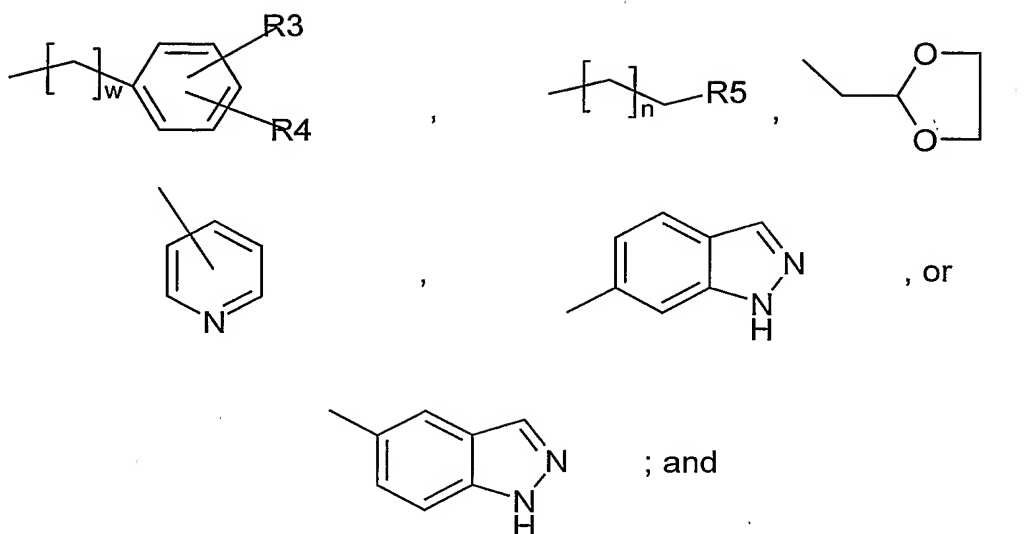


10

I

in which

R2 is a radical of the formula



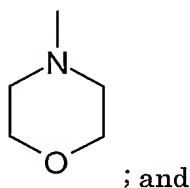
in which

$$n = 1 - 2;$$

5 $w = 0 - 2;$

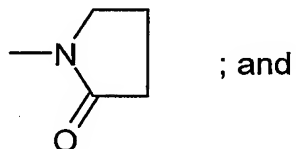
R_3 and R_4 are independently hydrogen, hydroxy, $-OR_6$, halogen, $-SO_2NH_2$, $-OH$, $-C_{1-6}alkyl$, $-(C=O)-OEt$, $-NH(C=O)-CH_3$, or a radical of the formula

10



; and

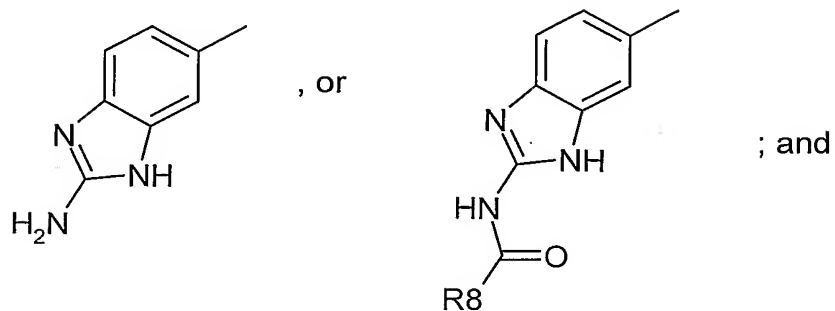
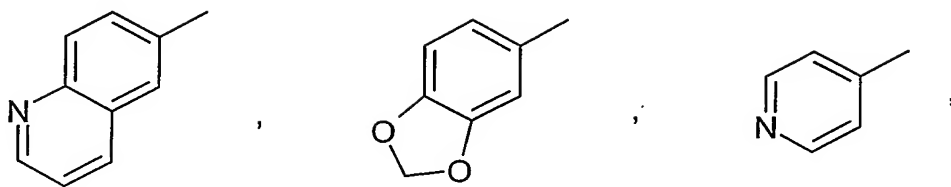
R_5 is $-NH_2$, hydrogen, $-OR_6$, $-N(R_6)(R_7)$, or a radical of the formula



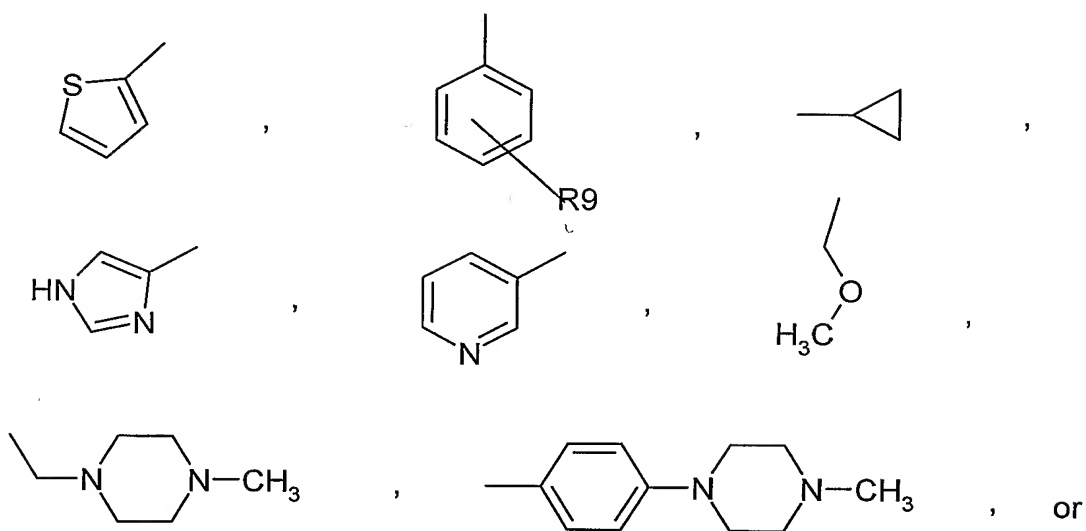
; and

R_1 is a radical of the formula

15



R8 is a radical of the formula

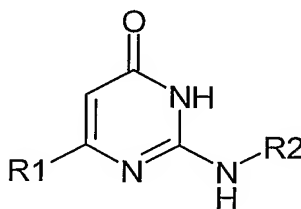


R9 is -NH(C=O)CH₃, -SO₂NH₂, -SO₂N(R6)(R7); and

5

R6 and R7 are independently C₁₋₆alkyl.

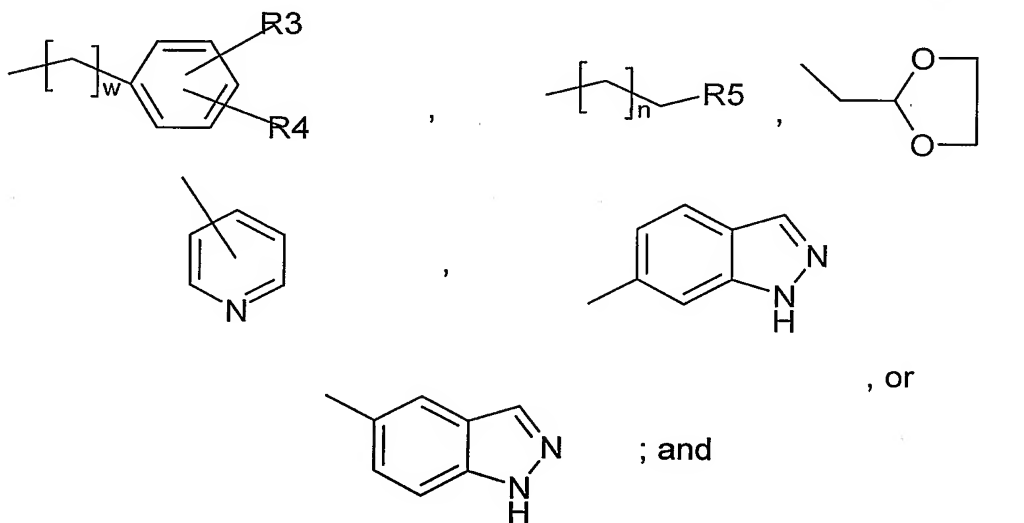
6. A method of treating or preventing diseases of the erythroid and hematopoietic systems, caused by the hYAK3 imbalance or inappropriate activity; comprising, administering to a mammal a therapeutically effective amount of a compound formula
- 5 I, or a salt, solvate, or a physiologically functional derivative thereof



I

in which

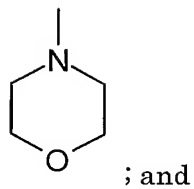
- 10 R2 is a radical of the formula



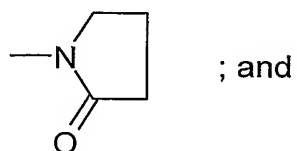
in which

- 15 $n = 1 - 2$;
 $w = 0 - 2$;

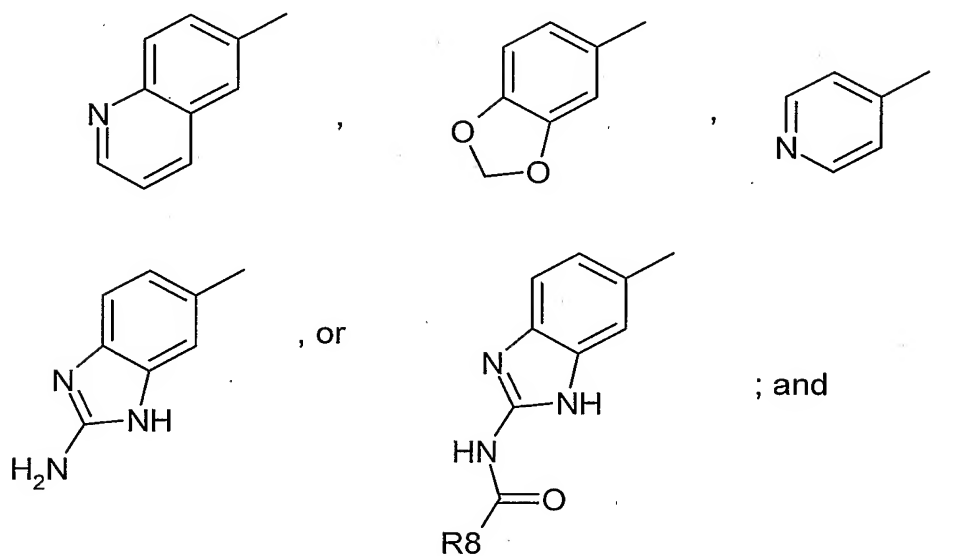
R3 and R4 are independently hydrogen, hydroxy, -OR6, halogen, -SO₂NH₂, -OH, -C₁₋₆alkyl, -(C=O)-OEt, -NH(C=O)-CH₃, or a radical of the formula



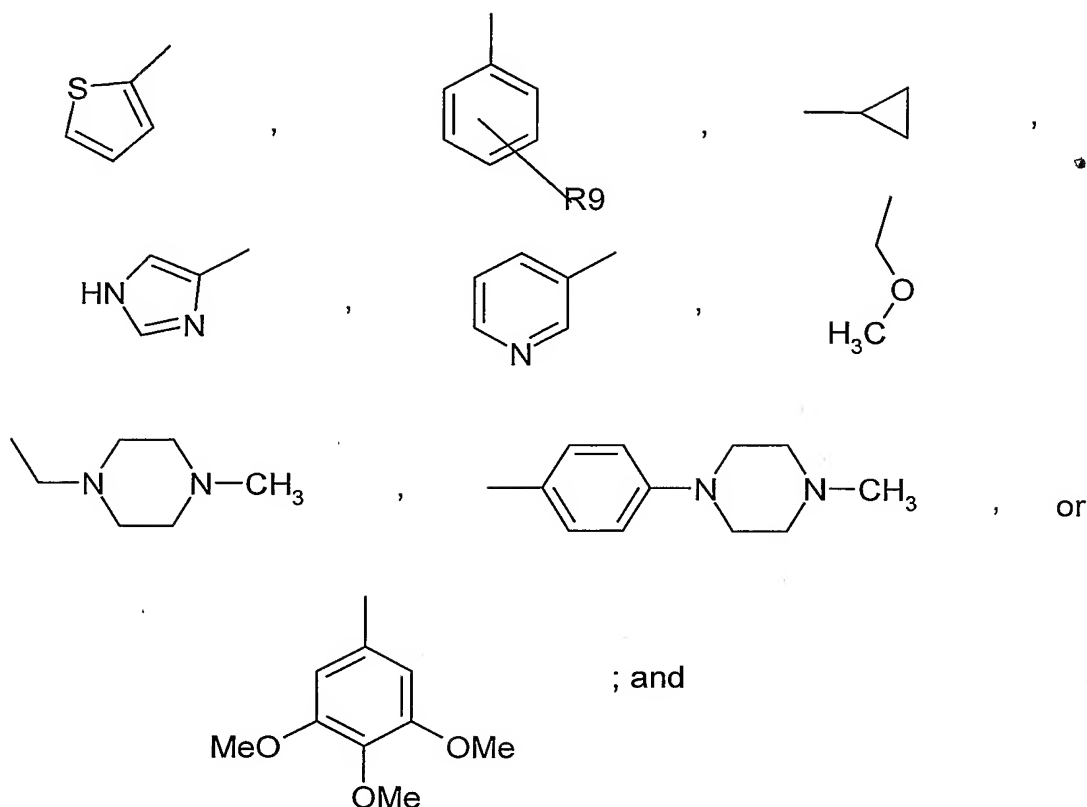
R5 is -NH_2 , hydrogen, -OR_6 , $\text{-N(R}_6\text{)(R}_7\text{)}$, or a radical of the formula



5 R1 is a radical of the formula



R8 is a radical of the formula



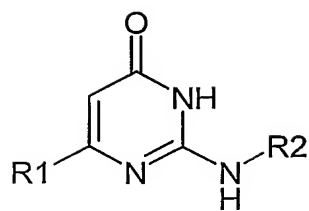
R9 is -NH(C=O)CH_3 , $\text{-SO}_2\text{NH}_2$, $\text{-SO}_2\text{N(R6)(R7)}$; and

R6 and R7 are independently C_{1-6} alkyl.

5

7. A method of claim 6 in which diseases of the erythroid and hematopoietic systems are selected from the group consisting of: anemia, aplastic anemia, myelodysplastic syndrome, myelosuppression, and cytopenia.

- 10 8. A method of treating or preventing diseases selected from the group consisting of: anemia, aplastic anemia, myelodysplastic syndrome, myelosuppression, and cytopenia; comprising, administering to a mammal a therapeutically effective amount of a compound formula I, or a salt, solvate, or a physiologically functional derivative thereof

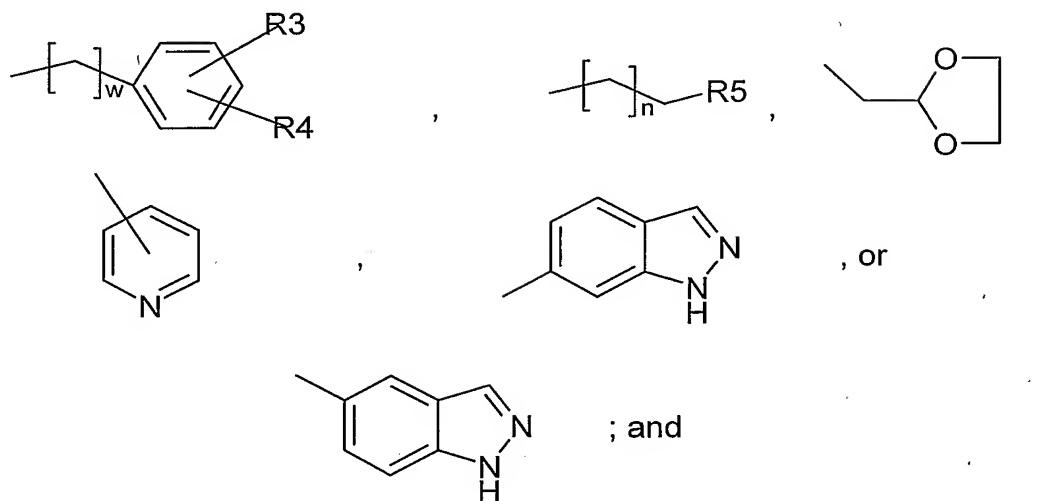


I

in which

R2 is a radical of the formula

5

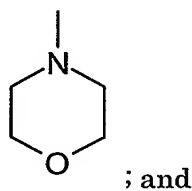


in which

$n = 1 - 2$;

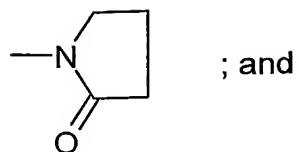
10 $w = 0 - 2$;

R3 and R4 are independently hydrogen, hydroxy, -OR6, halogen, -SO₂NH₂, -OH, -C₁₋₆alkyl, -(C=O)-OEt, -NH(C=O)-CH₃, or a radical of the formula

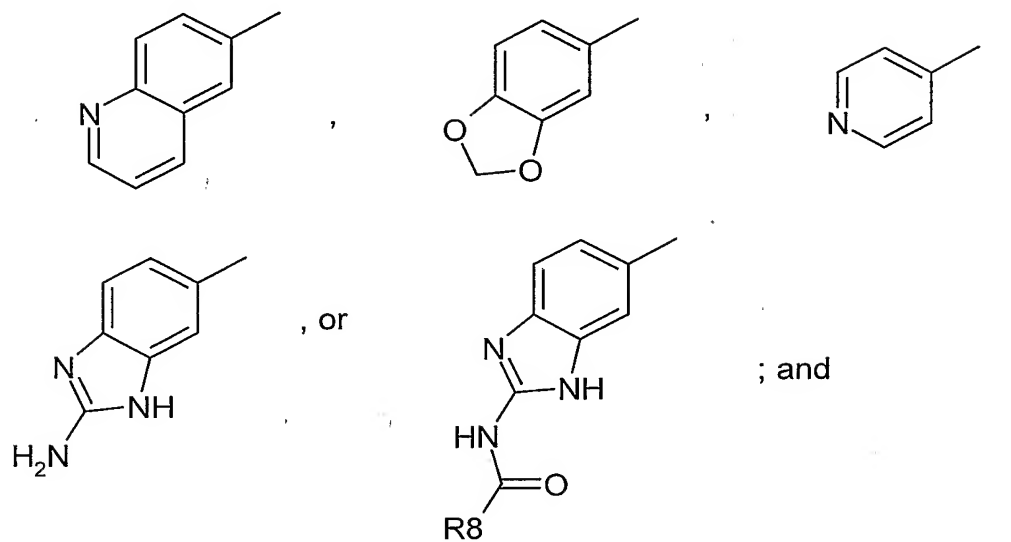


; and

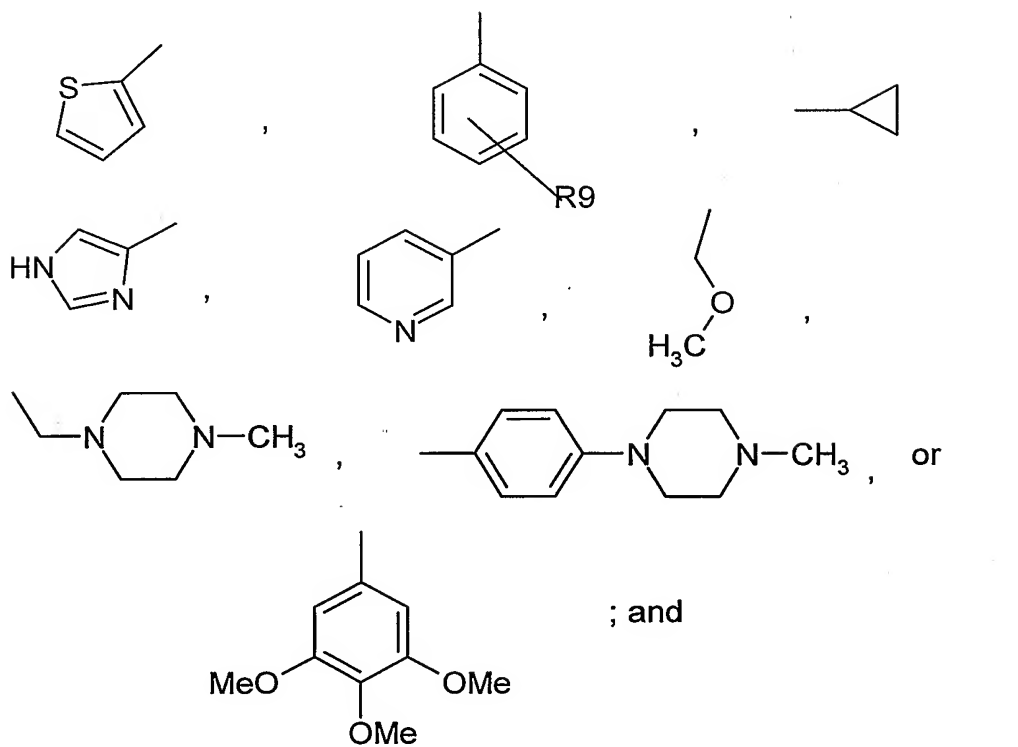
15 R5 is -NH₂, hydrogen, -OR6, -N(R6)(R7), or a radical of the formula



R1 is a radical of the formula



R8 is a radical of the formula

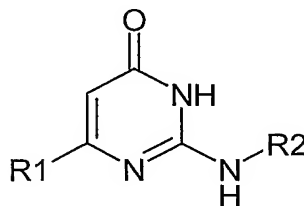


R9 is $-\text{NH}(\text{C}=\text{O})\text{CH}_3$, $-\text{SO}_2\text{NH}_2$, $-\text{SO}_2\text{N}(\text{R6})(\text{R7})$; and

R6 and R7 are independently C_{1-6} alkyl.

5

9. A pharmaceutical composition including a therapeutically effective amount of a compound formula I, or a salt, solvate, or a physiologically functional derivative thereof, and one or more pharmaceutically acceptable carriers, diluents and excipients

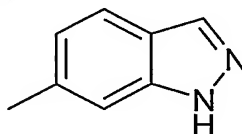
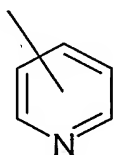
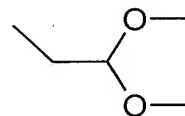
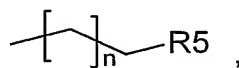
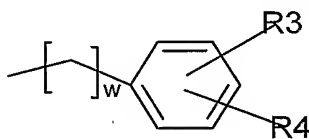


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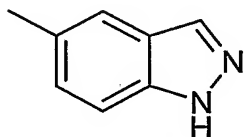
I

in which

R2 is a radical of the formula



, or



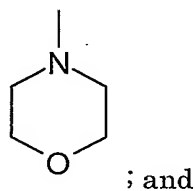
; and

15 in which

$n = 1 - 2$;

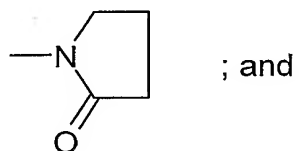
$w = 0 - 2$;

R3 and R4 are independently hydrogen, hydroxy, -OR6, halogen, -SO₂NH₂, -OH, -C₁₋₆alkyl, -(C=O)-OEt, -NH(C=O)-CH₃, or a radical of the formula

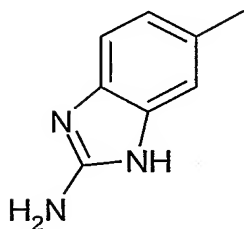
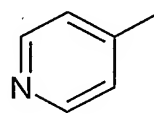
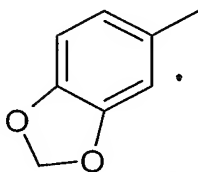
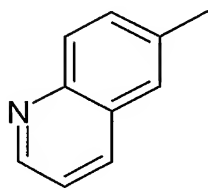


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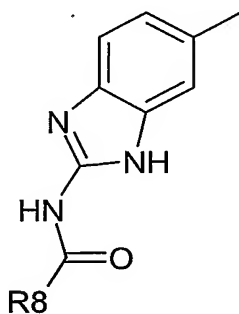
R5 is -NH₂, hydrogen, -OR6, -N(R6)(R7), or a radical of the formula



R1 is a radical of the formula



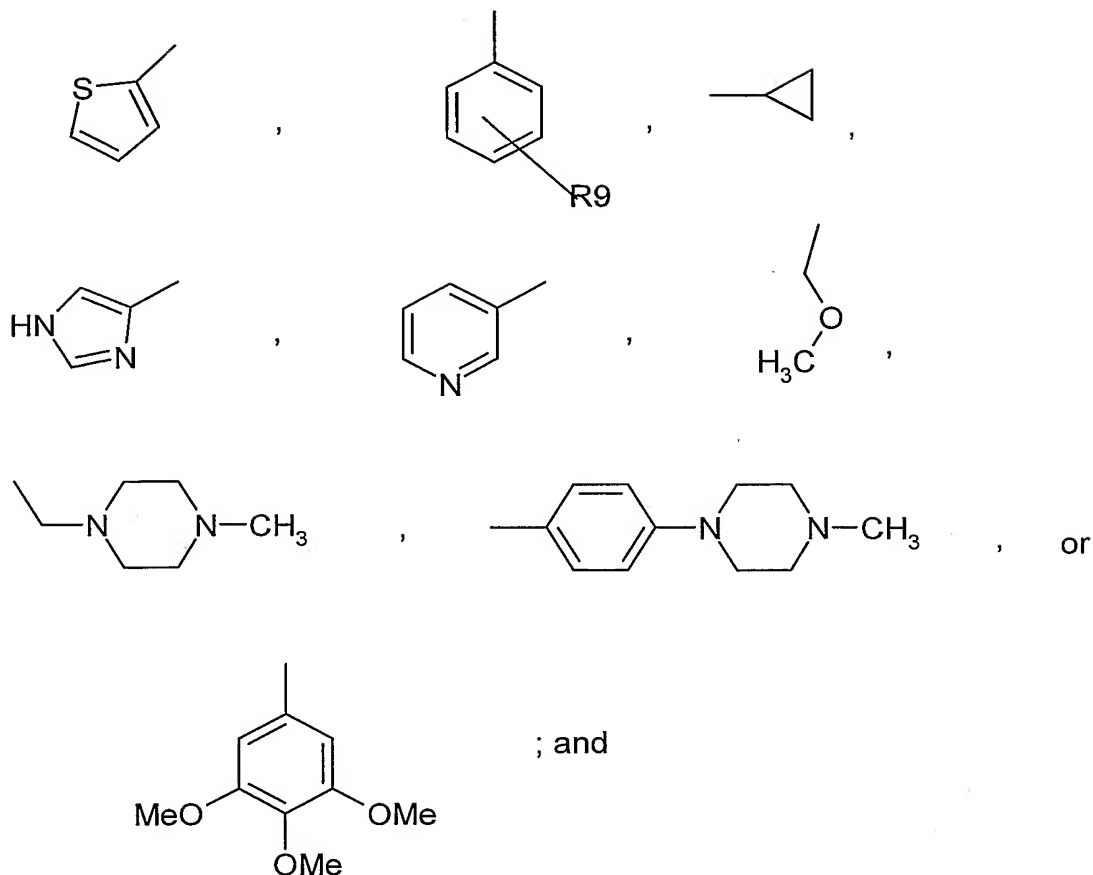
, or



; and

10

R8 is a radical of the formula



R9 is -NH(C=O)CH₃, -SO₂NH₂, -SO₂N(R6)(R7); and

R6 and R7 are independently C₁₋₆alkyl.

5

10. A compound selected from the group consisting of:

2-(2-Amino-ethylamino)-6-quinolin-6-yl-3H-pyrimidin-4-one;

2-(2-Dimethylamino-ethylamino)-6-quinolin-6-yl-1H-pyrimidin-4-one;

10 2-(3-Methoxy-benzylamino)-6-quinolin-6-yl-1H-pyrimidin-4-one;

2-{{2,6-Bis(methoxy)phenyl}amino}-6-(6-quinolinyl)-4(1H)-pyrimidinone;

N-(5-{2-[(2-Chlorophenyl)amino]-6-oxo-1,6-dihydro-4-pyrimidinyl}-1H-benzimidazol-2-yl)-2-thiophenecarboxamide;

- N-{5-[6-Oxo-2-(4-pyridinylamino)-1,6-dihydro-4-pyrimidinyl]-1H-benzimidazol-2-yl}-2-thiophenecarboxamide;
- N-[5-(2-{[3-(Aminosulfonyl)phenyl]amino}-6-oxo-1,6-dihydro-4-pyrimidinyl)-1H-benzimidazol-2-yl]-2-thiophenecarboxamide;
- 5 N-{5-[6-Oxo-2-(phenylamino)-1,6-dihydro-4-pyrimidinyl]-1H-benzimidazol-2-yl}-2-thiophenecarboxamide;
- N-(5-{2-[(3-Hydroxyphenyl)amino]-6-oxo-1,6-dihydro-4-pyrimidinyl}-1H-benzimidazol-2-yl)-2-thiophenecarboxamide;
- 10 N-{5-[2-(1H-Indazol-6-ylamino)-6-oxo-1,6-dihydro-4-pyrimidinyl]-1H-benzimidazol-2-yl}-2-thiophenecarboxamide;
- N-[5-(2-{[4-(Methyloxy)phenyl]amino}-6-oxo-1,6-dihydro-4-pyrimidinyl)-1H-benzimidazol-2-yl]-2-thiophenecarboxamide;
- N-[5-(2-{[2-(Methyloxy)ethyl]amino}-6-oxo-1,6-dihydro-4-pyrimidinyl)-1H-benzimidazol-2-yl]-2-thiophenecarboxamide;
- 15 N-[5-(2-{[2-(Methyloxy)phenyl]amino}-6-oxo-1,6-dihydro-4-pyrimidinyl)-1H-benzimidazol-2-yl]-2-thiophenecarboxamide;
- N-[5-(2-{[3-(Methyloxy)phenyl]amino}-6-oxo-1,6-dihydro-4-pyrimidinyl)-1H-benzimidazol-2-yl]-2-thiophenecarboxamide;
- 20 N-[5-(2-{[3-(Dimethylamino)propyl]amino}-6-oxo-1,6-dihydro-4-pyrimidinyl)-1H-benzimidazol-2-yl]-2-thiophenecarboxamide;
- N-[5-(2-{[2-(2,4-Dichlorophenyl)ethyl]amino}-6-oxo-1,6-dihydro-4-pyrimidinyl)-1H-benzimidazol-2-yl]-2-thiophenecarboxamide;
- 25

- N-[5-(2-{[2-(4-Morpholinyl)phenyl]amino}-6-oxo-1,6-dihydro-4-pyrimidinyl)-1H-benzimidazol-2-yl]-2-thiophenecarboxamide;
- N-(5-{2-[(2-Fluorophenyl)amino]-6-oxo-1,6-dihydro-4-pyrimidinyl}-1H-benzimidazol-2-yl)-2-thiophenecarboxamide;
- 5 N-(5-{2-[(2,5-Dichlorophenyl)amino]-6-oxo-1,6-dihydro-4-pyrimidinyl}-1H-benzimidazol-2-yl)-2-thiophenecarboxamide;
- N-(5-{2-(Ethylamino)-6-oxo-1,6-dihydro-4-pyrimidinyl}-1H-benzimidazol-2-yl)-2-thiophenecarboxamide;
- N-(5-{2-[(2-Methylphenyl)amino]-6-oxo-1,6-dihydro-4-pyrimidinyl}-1H-benzimidazol-2-yl)-2-thiophenecarboxamide;
- 10 N-[5-(6-Oxo-2-{[3-(2-oxo-1-pyrrolidinyl)propyl]amino}-1,6-dihydro-4-pyrimidinyl)-1H-benzimidazol-2-yl]-2-thiophenecarboxamide;
- N-(5-{2-[(1,3-Dioxolan-2-ylmethyl)amino]-6-oxo-1,6-dihydro-4-pyrimidinyl}-1H-benzimidazol-2-yl)-2-thiophenecarboxamide;
- 15 3-(Acetylamino)-N-(5-{2-[(2-chlorophenyl)amino]-6-oxo-1,6-dihydro-4-pyrimidinyl}-1H-benzimidazol-2-yl)benzamide;
- N-(5-{2-[(2-Chlorophenyl)amino]-6-oxo-1,6-dihydro-4-pyrimidinyl}-1H-benzimidazol-2-yl)cyclopropanecarboxamide;
- 4-(Aminosulfonyl)-N-(5-{2-[(2-chlorophenyl)amino]-6-oxo-1,6-dihydro-4-pyrimidinyl}-1H-benzimidazol-2-yl)benzamide;
- 20 N-(5-{2-[(2-Chlorophenyl)amino]-6-oxo-1,6-dihydro-4-pyrimidinyl}-1H-benzimidazol-2-yl)-4-[(dipropylamino)sulfonyl]benzamide;
- N-(5-{2-[(2-Chlorophenyl)amino]-6-oxo-1,6-dihydro-4-pyrimidinyl}-1H-benzimidazol-2-yl)-1H-imidazole-4-carboxamide;
- 25 N-(5-{2-[(2-Chlorophenyl)amino]-6-oxo-1,6-dihydro-4-pyrimidinyl}-1H-benzimidazol-2-yl)

- 1)-3,4,5-tris(methyloxy)benzamide;
- N-(5-{2-[(2-Chlorophenyl)amino]-6-oxo-1,6-dihydro-4-pyrimidinyl}-1H-benzimidazol-2-yl)-3-pyridinecarboxamide;
- N-(5-{2-[(2-chlorophenyl)amino]-6-oxo-1,6-dihydro-4-pyrimidinyl}-1H-benzimidazol-2-yl)-2-(methyloxy)acetamide;
- N-(5-{2-[(2-Chlorophenyl)amino]-6-oxo-1,6-dihydro-4-pyrimidinyl}-1H-benzimidazol-2-yl)-2-(4-methyl-1-piperazinyl)acetamide;
- 4-(4-Methyl-1-piperazinyl)-N-{5-[6-oxo-2-(phenylamino)-1,6-dihydro-4-pyrimidinyl]-1H-benzimidazol-2-yl}benzamide;
- 6-(2-Amino-1H-benzimidazol-5-yl)-2-({[3-(methyloxy)phenyl]methyl}amino)-4(1H)-pyrimidinone;
- N-{5-[2-({[3-(Methyloxy)phenyl]methyl}amino)-6-oxo-1,6-dihydro-4-pyrimidinyl]-1H-benzimidazol-2-yl}-2-thiophenecarboxamide;
- 6-Benzo[1,3]dioxol-5-yl-2-(3-methoxy-benzylamino)-1H-pyrimidin-4-one;
- 6-(1,3-Benzodioxol-5-yl)-2-(1H-indazol-5-ylamino)-4(1H)-pyrimidinone;
- 6-(1,3-Benzodioxol-5-yl)-2-{[3-(methyloxy)phenyl]amino}-4(1H)-pyrimidinone;
- 3-{[4-(1,3-Benzodioxol-5-yl)-6-oxo-1,6-dihydro-2-pyrimidinyl]amino}benzenesulfonamide;
- 6-(1,3-Benzodioxol-5-yl)-2-{[2-(methyloxy)phenyl]amino}-4(1H)-pyrimidinone;
- 2-[(2-Chlorophenyl)amino]-6-(4-pyridinyl)-4(1H)-pyrimidinone;
- 2-(1H-Indazol-6-ylamino)-6-(4-pyridinyl)-4(1H)-pyrimidinone;
- 3-{[4-Oxo-6-(4-pyridinyl)-1,4-dihydro-2-pyrimidinyl]amino}benzenesulfonamide;
- 2-{[3-(methyloxy)phenyl]amino}-6-(4-pyridinyl)-4(1H)-pyrimidinone;
- 2-(Phenylamino)-6-(4-pyridinyl)-4(1H)-pyrimidinone;

Ethyl 3-{[4-oxo-6-(4-pyridinyl)-1,4-dihydro-2-pyrimidinyl]amino}benzoate;
4-{[4-Oxo-6-(4-pyridinyl)-1,4-dihydro-2-pyrimidinyl]amino}benzenesulfonamide;
6-(4-Pyridinyl)-2-(4-pyridinylamino)-4(1H)-pyrimidinone; and
N-(3-{[4-Oxo-6-(4-pyridinyl)-1,4-dihydro-2-pyrimidinyl]amino}phenyl)acetamide.